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AFM report to Coastline Optic

N. F. Brejnholt

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AFM report to Coastline Optic

Prepared by: Nicolai F. Brejnholt

AFM Specialist: Tommaso Pardini

Date: June 19, 2015

Purpose: This report briefly outlines results from AFM on Coastline plano-plano fused silica substrate serial number 1.0-FS-PL-3356 to establish if high spatial frequency roughness meets requirements.

Note: Further dissemination of results provided in this report must include:

"This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344. Funding was provided by NASA's Astrophysics Research and Analysis (APRA) program. LLNL-TR-673900."

Results

Sketch below approximately indicates where images on subsequent pages were obtained. Radial PSD plots were evaluated and noted to have acceptable performance at high frequency. Some concern that dimples and troughs (most noticeably in .001, .004 and .005) could have adverse effect on performance. Best effort to limit these required.

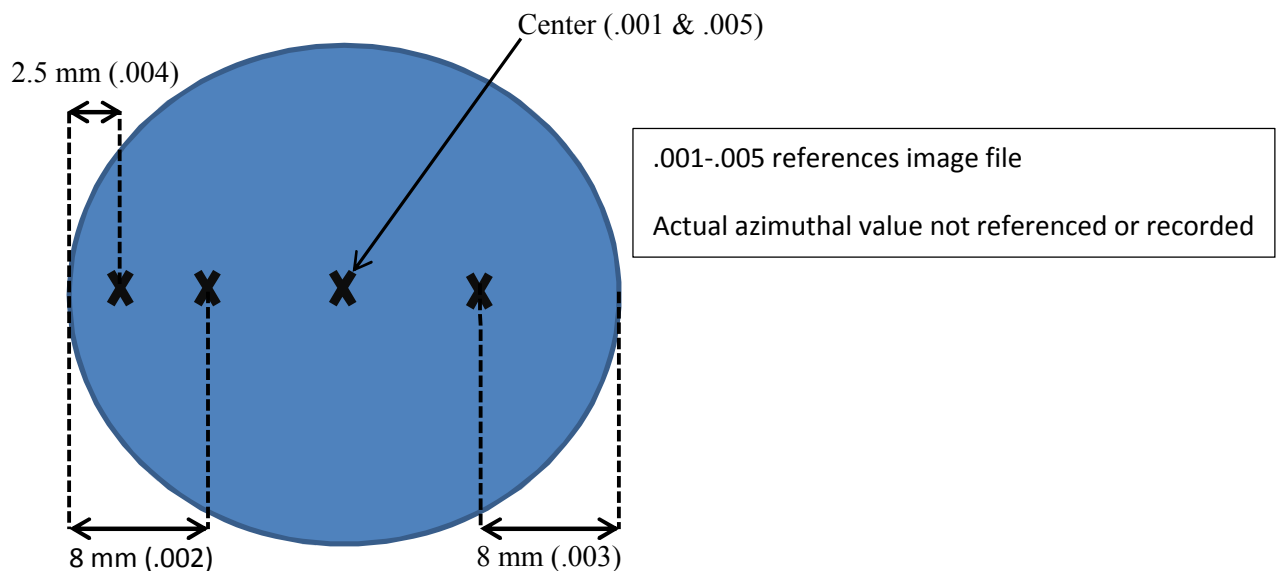


Figure 1: Sketch of approximate location of measurement areas.

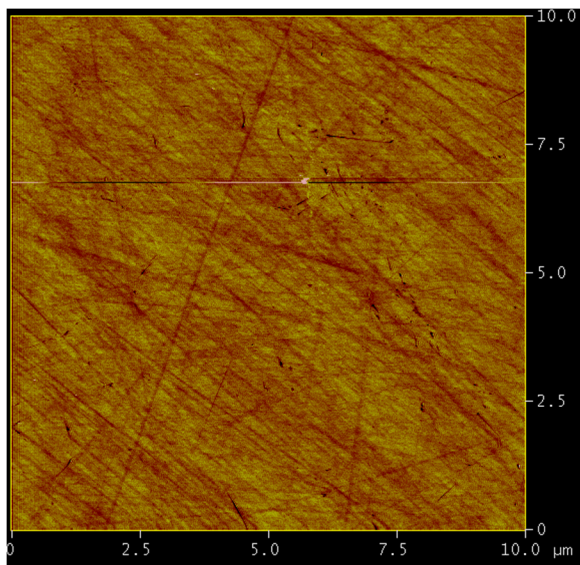


Image Statistics	
Img. Z range	21.317 nm
Img. Rms (Rq)	0.180 nm
Img. Ra	0.101 nm

10um.001

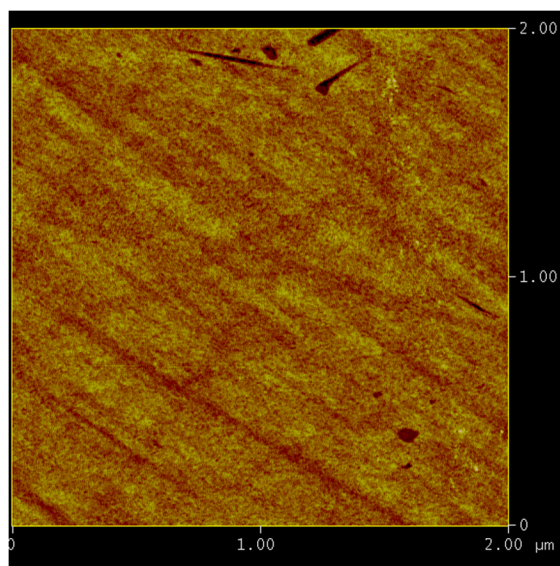


Image Statistics	
Img. Z range	2.516 nm
Img. Rms (Rq)	0.142 nm
Img. Ra	0.107 nm

2um.001

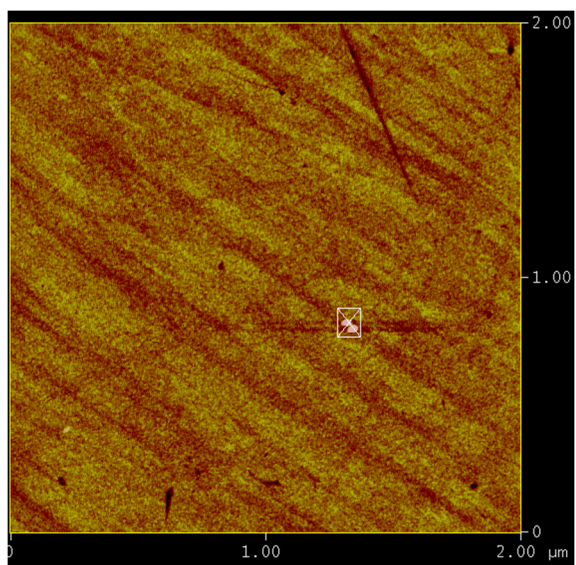


Image Statistics	
Img. Z range	3.221 nm
Img. Rms (Rq)	0.153 nm
Img. Ra	0.119 nm

2um.002

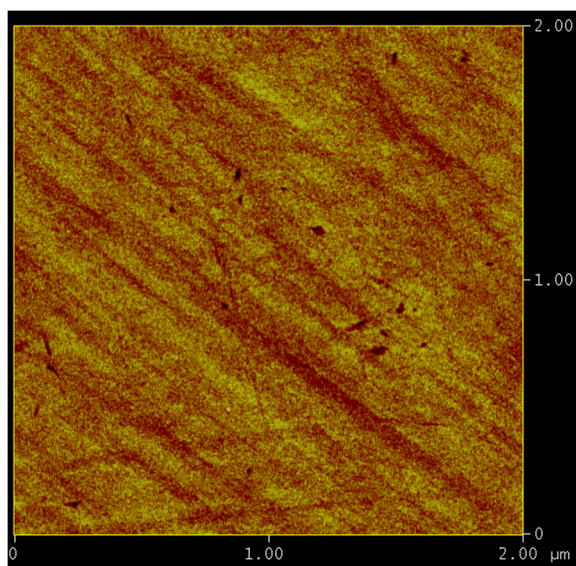


Image Statistics	
Img. Z range	3.165 nm
Img. Rms (Rq)	0.159 nm
Img. Ra	0.125 nm

2um.003

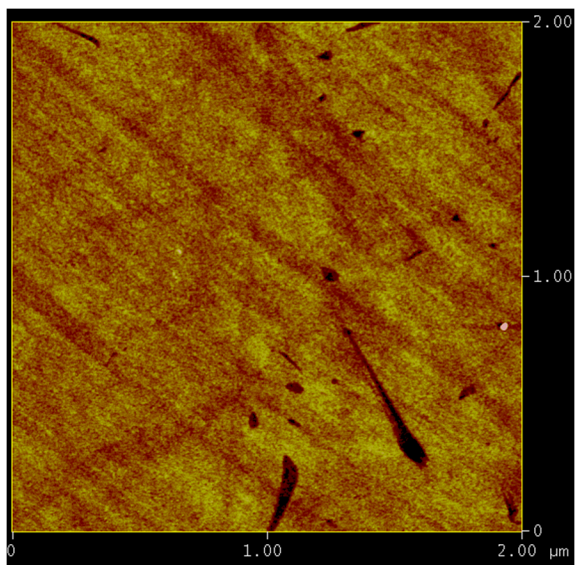


Image Statistics	
Img. Z range	4.779 nm
Img. Rms (Rq)	0.179 nm
Img. Ra	0.123 nm

2um.004

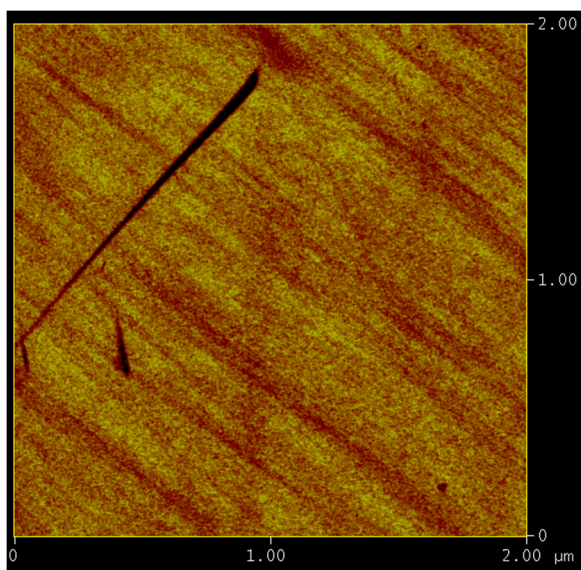


Image Statistics	
Img. Z range	3.726 nm
Img. Rms (Rq)	0.188 nm
Img. Ra	0.121 nm

2um.005